sensitivity analysis (PSA) results. **METHODS**: Decision analytic models were developed in Excel and R to assess the cost-effectiveness of a hypothetical therapy for a hypothetical, chronic disease. The models consisted of a decision tree (22 branches) for the first year of therapy and of a Markov model to capture long-term costs and effects. Both models comprised 24 decision nodes and 6 Markov models. All costs, effectiveness and utility parameters were hypothetical. Probabilistic sensitivity analysis was used to assess decision uncertainty by performing 10 000 Monte Carlo simulations. **RESULTS**: The incremental cost-effectiveness ratio (ICER) of the new therapy was $75,962.164371494/QALY when calculated with R and $75,962.164371494/QALY when calculated with Excel. At a threshold value of $50,000 per QALY, the probability that the hypothetical treatment is cost-effective was 14.5% when calculated with Excel and 13.6% when using R. At the higher thresholds of $100,000 and $150 000 per QALY, the probabiliy estimates increased to 80.4% (Excel) and 80.6% (R) and 98.0% (Excel) and 98.1% (R), respectively. **CONCLUSIONS**: Excel and R allow building and analyzing complex decision models. As we showed, both model implementations yield the same results when calculating an ICER, up to 14 digits. The difference in PSA results might have been due to their probabilistic nature (here: 10,000 iterations). Both packages have been used for medical decision making. Choosing one package over the other does not need to be performance-based and can be left to personal preference.

MO4

BAYESIAN GENERALIZED LINEAR MODELLING OF THE RELATIONSHIP BETWEEN HEALTH ASSESSMENT QUESTIONNAIRE-DISABILITY INDEX AND HEALTH UTILITIES INDEX MARK III IN EARLY AND LATE RHEUMATOID ARTHRITIS: DATA FROM THE PREMIER AND ARMADA TRIALS

Vanness D[1], Roy S[2], Benedict A[3], Cifaldi M[2]
[1]United BioSource Corporation, Madison, WI, USA, [2]Abbott Laboratories, Abbott Park, IL, USA, [3]United BioSource Corporation, London, UK

OBJECTIVES: Many cost-effectiveness analyses in rheumatoid arthritis (RA) rely on statistical models relating Health Assessment Questionnaire Disability Index (HAQ) scores to health utilities. Linear models can produce out-of-bound estimates of Health Utilities Index Mark 3 (HUI3) scores. We estimated bounded, nonlinear relationships between HAQ and HUI3 based on patient-level data. **METHODS:** Bayesian generalized linear models (GLMs) were developed to predict baseline HUI3 conditional on baseline HAQ using patient-level data from the PREMIER (2-year controlled study in early RA) and ARMADA (24-week controlled study in longstanding RA) trials. HUI3 was rescaled to the interval [0,1] and modeled using a beta distribution and logistic link function. Normal-linear models were also estimated. Alternative specifications included age, sex, and HAQ-squared as additional predictors. Model parameters were estimated using WinBUGS 1.4.3. Models were compared using the deviance information criterion (DIC); lesser values imply better fit. Predicted values from beta-logistic models were linearly retransformed to the original HUI3 scale. **RESULTS:** Results were similar in early and late RA. Based on DIC, the beta-logistic models were more likely to generate the observed data than were the normal-linear models (PREMIER: –673.0 vs. –614.4; ARMADA: –226.1 vs. –215.8). Qualitatively, predictions from the beta-logistic models differed modestly from the normal-linear model. At low disability (HAQ = 0.0), predicted HUI3 utilities were 0.75 vs. 0.81 (PREMIER) and 0.74 vs. 0.79 (ARMADA) for the beta-logistic and normal-linear models, respectively. At high disability (HAQ = 3.0), predicted HUI3 utilities were –0.03 vs. –0.05 (PREMIER) and 0.01 vs. 0.01 (ARMADA). Age, sex, and HAQ-squared did not improve DIC. **CONCLUSION:** There is a strong negative relationship between HAQ and HUI3. Although the overall relationship is nonlinear, the linear approximation seems close across the relevant range of HAQ scores (0–3). Considering the complexity of the GLM approach, normal-linear regression may be adequate for cost-effectiveness analyses.

PODIUM SESSION II: PATIENT PREFERENCE STUDIES

PP1

A SYSTEMATIC REVIEW OF THE ANALYTIC HIERARCHY PROCESS IN HEALTH CARE DECISION MAKING

Hummel JM, IJzerman MJ
University of Twente, Enschede, The Netherlands

OBJECTIVES: The analytic hierarchy process (AHP), a technique for multi-criteria decision analysis, is increasingly being used to support health care decision making. These decisions mainly relate to the application and coverage of health care technologies, and its use as a patient-reported outcome measure. The objective of this study is to review the use of this upcoming technique in health care; the Analytic Hierarchy Process. **METHODS:** We conducted a systematic review of the relevant medical, health-economical, psycho-sociological, managerial, and applied mathematical literature. We used the keywords "Analytic Hierarchy Process" AND ("patient" OR "patients" OR "health" OR "health care" OR "medical" OR "clinical" OR "hospital") to search in the general topic of the articles within in the databases PubMed and Web of Science. **RESULTS:** We found 57 distinctive AHP applications in health care. Of the retrieved applications, 13 % focus on shared decision-making between patient and clinician, 25 % on the development of clinical practice guidelines, 5 % on the development of medical devices and pharmaceuticals, 44 % on management decisions in health care organizations, and 13 % on the development of national health care policy. **CONCLUSIONS:** From the review it is concluded that the AHP is frequently used and provides valuable support in complex health care decisions. The AHP is suitable to apply in case of complex health care decision problems, a need to improve decision making instead of explain decision outcomes, a need to share information among experts or between clinicians and patients, and in case of a limited availability of informed respondents. We also foresee the use of the AHP in conducting comprehensive Health Technology Assessments involving multiple stakeholders. Only for these specific types of decision problems, we recommend the use of the AHP.

PP2

PATIENT PREFERENCES FOR BENEFIT-RISK TRADEOFFS AMONG POST-TRANSPLANT OUTCOMES IN END-STAGE RENAL DISEASE

Johnson FR[1], Hauber AB[1], Mohamed AF[1], Gonzalez JM[2]
[1]RTI Health Solutions, Research Triangle Park, NC, USA, [2]RTI HEalth Solutions, Research Triangle Park, NC, USA

The Food and Drug Administration Amendments Act of 2007 requires FDA to develop and implement plans for evaluating benefits and risks of new pharmaceuticals. Quantitative approaches to comparing therapeutic benefits and risks thus are increasingly of interest to regulators and industry decision makers. **OBJECTIVES:** To quantify benefit-risk tradeoff preferences for post-transplant outcomes among chronic kidney-disease patients at risk for kidney transplant and estimate maximum acceptable adverse-event risks for specified efficacy improvements. **METHODS:** US residents aged 18 years or older with a self-reported diagnosis of chronic kidney failure or end-stage kidney disease completed a web-enabled survey instrument that presented a series of trade-off questions, each including a pair of hypothetical post-transplant outcome profiles. Each profile was defined by five efficacy attributes and three life-threatening adverse-event attributes. Each subject answered 9 trade-off questions based on a predetermined experimental design with known statistical properties. **RESULTS:** A total of 233 subjects completed the survey. Subjects judged life expectancy to be more than three times more important than the next most important outcome. There were significant differences in preferences between older and younger subjects. Subjects over age 54 judged risks of impaired renal function, graft loss, acute rejection, infection, and malignancy as similarly important and progressive multifocal leukoencephalopathy (PML) risk as much less important. Subjects under age 54 judged risks of acute rejection, malignancy, and PML as unimportant. Maximum acceptable risk of serious infection for a one-year increase in expected survival was 8.5% (5.1%–17.7%) and 1.6% (0.9%–3.1%) for older and younger subjects, respectively. **CONCLUSIONS:** The benefit-risk tradeoff data obtained in this study support valid estimates of maximum acceptable adverse-event risks in different patient populations. These estimates of risk tolerance provide a useful quantitative approach to identifying treatments where acceptable risk levels exceed actual risk levels by significant margins.

PP3

WHAT DIMENSIONS ARE IMPORTANT TO PATIENTS IN THEIR EXPERIENCE OF CONTINUITY OF CARE? A STUDY OF PATIENTS' PREFERENCES USING A DISCRETE CHOICE EXPERIMENT

Kjaer T[1], Bech M[1], Draborg E[1], Mollerup M[2]
[1]University of Southern Denmark, Odense, Denmark, [2]Odense University Hospital, Odense, Denmark

OBJECTIVES: Many patients experience complex disease courses raising concerns about fragmentation of care and continuity. The objective of the present study was to explore which dimensions that are important to patients in their experience of continuity of care. Patients' preferences were elicited using a discrete choice experiment (DCE). **METHODS:** 1800 patients were invited to participate in a postal survey including three patient groups; diabetics, heart patients and cancer patients. Random samples of each of the defined patient groups were recruited through Odense University Hospital given at least one admission during the last two years. The DCE contained five attributes; 1) Involvement of GP in the patient's course of disease; 2) Arrangement of a contact person at the hospital; 3) Involvement of the patient in the decisions; 4) Yearly consultation at hospital; and 5) Distance to hospital. **RESULTS:** Data was collected in the period April-June 2009 and resulted in an overall response rate of 67%. Primary analyses of DCE data are promising. All respondents value patient involvement in the treatment decision highly whereas the involvement of GPs matters less—in particular to diabetic patients and cancer patients. We observe some differences in preferences among diabetes compared to the two other patient groups. Notably heart and cancer patients find the offer of yearly consultation unimportant and find the arrangement of a contact person objectionable. These two differences likely indicate patients' (dis)satisfaction with the health care system and the current organisation of treatment and as such may reflect some lack of continuity of care. **CONCLUSIONS:** Worldwide there has been a policy focus on enhancing patients' satisfaction and enhancing continuity of care among patients. The present study contributes to this work by examining what dimensions that are deemed important by patients in their experience with the health care system during their disease courses.

PP4

LIVES WORTH LIVING: OLDER SMOKERS' STATED PREFERENCES FOR LONGEVITY

Johnson FR[1], Smith VK[2], Smith GA[3], Gonzalez JM[4]
[1]RTI International, Research Triangle Park, NC, USA, [2]Arizona State University, Tempe, AZ, USA, [3]University of Michigan, Ann Arbor, MI, USA, [4]RTI Health Solutions, Research Triangle Park, NC, USA

The US Food and Drug Administration recently was granted new authority to regulate tobacco-related risks. While the morbidity and mortality benefits of smoking cessation